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A study to determine which method, video or pamphlet, of providing (CHAMPUS) information to beneficiaries is more effective in increasing beneficiary knowledge of the CHAMPUS program. The Solomon Four - Group Design was used in conjunction with a 16 question survey instrument to collect and record data for the study. The data was statistically analyzed via the Mann Whitney U Test and the Kruskal - Wallis K Test. Demographic data was shown in the form of frequency and percentage information. The results of the study showed that the difference between providing CHAMPUS information via the pamphlet or the videotape was statistically not significant. The difference between providing CHAMPUS information via the pamphlet and videotape and not providing information was shown to be statistically significant. The statistical analysis was performed at the alpha .05 level of significance.

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A STUDY TO DETERMINE

WHICH OF TWO METHODS OF PROVIDING CHAMPUS INFORMATION TO BENEFICIARIES IS MORE EFFECTIVE IN INCREASING BENEFICIARY KNOWLEDGE OF THE CHAMPUS PROGRAM

A Graduate Research Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree

of

Master of Health Administration

by

Captain Burton F. Briggs, MSC

July 1988

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Finally, I wish to extend my gratitude to my wife, Janice, who has provided immeasurable support during the past two years.

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I. INTRODUCTION

Overview

The health care industry is now in an era of cost containment caused by resource limitations, competition, and business risk. The military health care system is also affected by resource limitations, and to a lesser degree competition and risk.

Senior medical officials from the Army, Navy and Airforce painted an austere portrait of military medical care at a recent congressional hearing on the proposed 1989 defense budget. The testimony delivered to congress lamented shortfalls in funding, reductions in personnel and morale damaging legislation.[1] Lt. General Quinn H. Becker, Surgeon General of the Army, told members of the House Armed Services Committee that the 1989 budget is "going to cause great problems in military healthcare". Becker described problems ranging from a shortfall of CHAMPUS funds to the $24 million cost of the service's drug testing program which the medical budget must absorb.[2] These budget reductions have resulted in a freeze on hiring for civilian positions in Health Services Command (HSC), the release of all temporary employees not considered essential to accomplish the commands' mission, and a curtailment on lab test orders and Radiology procedures ordered by civilian physicians.[3] In addition to the aforementioned budget reduction measures, a curtailment of optometric services for military retirees and their family members went into effect on April 1, 1988, at Health

Services Command military treatment facilities. Officials at HSC attributed a shortage of professional staff as the reason for the curtailment. HSC Commander, Major General Tracy E. Strevey expressed his reluctance to institute the policy change. "There is simply no alternative to conserving scarce resources if we expect to provide quality healthcare to the active force," Strevey noted.[4] These costs containment measures are exacerbated by the fact that they come during an increase in the growth of the dependent and retired populations, due in part to extended longevity, which has forced the limiting of healthcare services in some military healthcare facilities.

Low pay and dwindling benefits have also been cited as the primary reasons physicians are not joining the services. Yet at the same time, according to the Graduate Medical Educational National Advisory Council, a surplus of 70,000 physicians for 1990 is forecast. This prognosticated physician surplus makes it imperative that the Army's efforts to obtain good physician specialists should go well beyond the current unimaginative and nondescript advertising found in national medical journals.[5] Fifty percent of all Army physicians continue to leave the service once their obligation for educational support received is fulfilled. The Army must become competitive in the recruitment and retention of physicians in order to maintain a high level of quality care.[6]

In addition to the budget and physician crisis there is also a severe shortage of nurses. Although the Army is not alone in

its nursing woes, that is also part of the problem. Service hospitals must compete for the dwindling number of young nurses with civilian hospitals who are often willing to provide higher salaries and more elaborate benefits packages.[7] The Army's nursing shortage is also more severe than at civilian hospitals. Various estimates place the nationwide shortage at 13 percent, yet, among Army civilian nurses the figure is nearly twice as high. The Army is authorized by Congress to employ 2,035 civilian nurses, but it is 500 nurses shy of the mark, according to Pentagon statistics. Although the Army currently has 4,400 active duty nurses, that is still 174 fewer than it is allowed to employ.[8]

The ability of the military healthcare system to provide comprehensive health care to all beneficiaries is diminishing rapidly, and will continue to do so in the near future. The National Military Family Association (NMFA), a non-profit organization based in Washington, states that families and retirees must learn to face the harsh realities. According to the NMFA, the military's network of hospitals and clinics is not large enough to accommodate the medical needs of the 7 million military dependents and retirees who are eligible for healthcare.[9] Yet this fact is incongruent with the oft held belief that in order to retain soldiers and encourage them to make the military a lifetime career, we must also ensure that when they retire, they and their families will receive promised medical benefits.[10] Under the current system, healthcare is

provided to the active duty soldier's family and the retired soldiers and their family members on a space available basis, but decreasing manpower availability and funding uncertainties in light of the federal debt reduction legislation is already beginning to adversely affect healthcare services and will continue to do so in the future.[11]

Healthcare for the majority of these beneficiaries can be effectively provided in the civilian community through the use of alternative healthcare services such as the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Dr. William E. Mayer (Assistant Secretary of Defense for Health Affairs) noted in 1986 that CHAMPUS, designed 30 years ago, was to serve "as a little safety valve." CHAMPUS costs in 1986 were $1.8 billion and exceeded $2 billion in 1987. It is painfully obvious that what has been done is inadequate, and increasing costs of medical care have become prohibitive. CHAMPUS now claims that DOD wide, every third eligible bed patient and every sixth outpatient receive care in a civilian facility.[12]

In an effort to restrain healthcare costs, DOD just announced a new trial program, which will provide eligible CHAMPUS beneficiaries with two additional civilian managed care alternatives called CHAMPUS "Prime" and CHAMPUS "Extra".[13] Another instrument for meeting the CHAMPUS challenge is the new Partnership Program which provides an opportunity to contain CHAMPUS costs by entering into negotiated rate provider agreements and to use partnership providers to maximize inpatient

utilization. A miniature version of the new low cost CHAMPUS health insurance program scheduled to begin August 1988 in California and Hawaii is also being planned for Florida and Georgia and will offer dependents and retirees an inexpensive alternative to the military's current health insurance program.[14]

Purpose of the Study

With the advent of new CHAMPUS programs it is becoming increasingly important for Military healthcare facilities to keep beneficiaries in their respective healthcare regions informed about their facilities healthcare services, capabilities, and alternative healthcare service opportunities. This plethora of CHAMPUS information has increased the already heavy workload of military healthcare facilities Health Benefits Advisors (HBA). The ability of the HBA's to provide accurate and timely information to CHAMPUS beneficiaries is being severely tested, and the use of informational material, such as pamphlets and videotapes, is beginning to play an important role in the provision of CHAMPUS information.

According to the Moncrief Army Community Hospital (MACH) HBA's the three main techniques utilized to inform beneficiaries of their CHAMPUS benefits are: one to one counseling by the HBA's, video tapes and pamphlets. The one to one counseling is by far the most time consuming and is generally directed toward retirees. The other two media techniques provide a more efficient way to impart information, yet their effectiveness in increasing the CHAMPUS knowledge base of beneficiaries is

unknown. The MACH HBA's have also noted that active duty soldiers receive a great deal of the CHAMPUS information provided by MACH. Since active duty soldiers provide their dependents with CHAMPUS information, and will one day be beneficiaries themselves, it is important that the active duty soldiers who sponsor dependent beneficiaries be kept up to date on the latest CHAMPUS programs.

To this end, the Deputy Commander for Administration at Moncrief Army Community Hospital requested that a study be done to determine which of two methods of providing CHAMPUS information to beneficiaries is more effective in increasing beneficiary knowledge of the CHAMPUS program.

Problem Statement

To determine which of two methods of providing CHAMPUS information to beneficiaries is more effective in increasing beneficiary knowledge of the CHAMPUS program.

Definition of Terms

1. Alternative health care services are those non-military health care services which are funded through DOD such as: The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS).
2. For the purposes of this study the study group will include active duty soldiers, dependents, and retired military personnel.

Objectives

The primary objectives of this research were as follows:

1. Review the literature concerning patient information research, patient education, marketing, and media information methods.
2. Review DOD and DA policies and regulations concerning CHAMPUS.
3. Establish two methods, a pamphlet and a videotape, of providing CHAMPUS information to the study group that informs beneficiaries of their CHAMPUS benefits.
4. Develop a questionnaire designed to evaluate the CHAMPUS knowledge base of the study group.
5. Determine the minimum sample size IAW the Solomon Four Group Design.
6. Determine if a difference in the knowledge level of the study group exists between the two alternative methods of providing the CHAMPUS information to the study group.
7. Determine if a difference in the knowledge level of the study group exists between the two alternative methods of providing the CHAMPUS information to the study group and no method of providing CHAMPUS information to the study group.

Criteria

1. The sampling design utilized random sampling techniques selecting the study group from patients requesting CHAMPUS information in the HBA's office, from patients presenting to

the MACH ACCESS clinic, and from retirees participating in the annual Armed Forces/Retirees Appreciation Day.

2. A statistical analysis of the data was conducted using the Mann-Whitney test and the Kruskal-Wallis test which was used to test for differences among the study group.
3. Statistical analysis was conducted at the alpha .05 level of significance.
4. The two methods of providing CHAMPUS information (video tape and pamphlet) must increase the CHAMPUS knowledge of the study group to qualify as "effective". The method that increases knowledge the most will be considered as the method that is "more effective".

Assumptions

1. The sample population (study group) was representative of the MACH Healthcare region population.
2. The CHAMPUS information provided to the study group will not significantly change during the course of the study.

Limitations

1. The study is only applicable in the MACH Healthcare region.
2. Alternative methods of increasing beneficiary CHAMPUS knowledge will not require additional manpower.
3. Alternative methods of increasing beneficiary CHAMPUS knowledge must be acceptable to the Moncrief Army Community Hospital Commander.

Research Methodology

1. A pamphlet and a video tape that informs beneficiaries of their CHAMPUS benefits was used to increase the study group knowledge of CHAMPUS benefits.
2. A 16 question true false questionnaire was developed and structured to test the knowledge of those study group members who were and were not given the opportunity to read the pamphlet or view the video tape and also to collect certain demographic data about those same study group members. The questionnaire was used as both the pre-test and post-test instrument.
3. The questionnaire was pre-tested on a random sample of study group members for the purposes of ensuring that the level of understanding of the questionnaire was sufficient for the purposes of this study.
4. A random sample of 120 Study group members was drawn from the MACH Healthcare region and placed into four 30 person groups for the purposes of the research study.

5. For the purposes of the research study the Solomon Four-Group Design was used to collect, record, and analyze the data. The paradigm for the Solomon Four - Group Design is at Table 1.

TABLE 1. Solomon Four Group Design

Experimental Group 1	R O1 X O2	= Pamphlet group.
Control Group 1	R O3 O4	= Pre/Post test group.
Experimental Group 2	R X O5	= Video tape group.
Control Group 2	R O6	= Post-test group.

Where, R = Random sample of study group members.

O = Measurement of the dependent variable (Questionnaire).

X = Independent variable (pamphlet or video tape).

7. a. Experimental Group 1 was pre-tested via the questionnaire. Upon completion of the pre-test Experimental Group 1 was given approximately 15 minutes to read the CHAMPUS pamphlet. After reading the pamphlet and handing the pamphlet back to the test proctor, Experimental Group 1 was given the post-test. Experimental Group 1 was randomly selected upon presenting to the ACCESS clinic, the HBA's office or from participation in the Armed Forces/Retirees Appreciation Day.

b. Control Group 1 was given the pre-test and upon finishing, was given the post-test. Control Group 1 was randomly selected in the same manner as Experimental Group 1.

c. Experimental Group 2 was given the opportunity to view the video tape in the ACCESS clinic and were then given the post-test at that time.

d. Control Group 2 was given the post-test in the ACCESS clinic, the HBA's office, and at the Armed Forces/Retirees Appreciation Day.

8. The testing was done during a three week period to preclude bias from outside sources.

9. The responses to the questionnaires were scored and ranked per each 30 person group to allow analysis by both the Mann-Whitney U test and the Kruskal-Wallis K test.

10. The K-statistic, which measures the difference among the ranked observations in the four 30 person groups, was computed to determine whether the Null Hypothesis (Ho) or Alternate Hypothesis (Ha) was accepted or rejected, where: the Ho is that there is no significant difference in the CHAMPUS benefits knowledge level between the four 30 person groups (Ho: u1=u2=u3=u4) and the Ha is that there is a significant difference in the CHAMPUS knowledge level between the four 30 person groups (Ha: u1,u2,u3 & u4 are not all equal).

11. The U statistic, which measures the differences among the ranked observations between the two experimental groups, was computed to determine whether the Null Hypothesis (Ho) or Alternate Hypothesis (Ha) was accepted or rejected, where: the Ho is that there is no significant difference in the CHAMPUS benefits knowledge level between Experimental Group

1 (Pamphlet) and Experimental Group 2 (Videotape), and the Ha is that there is a significant difference in the CHAMPUS benefits knowledge level between the two experimental groups.

ENDNOTES
Chapter 1 - Introduction

1. Kimble, Vesta, "Budget Breeding Health Crunch." Army Times 33 (1988): p. 10.

2. Ibid., p. 10.

3. "Twenty-four Million Dollar Budge Cut." HSC Mercury April (1988): p. 1.

4. "Staff Shortage Reduces Eye Exam." HSC Mercury April (1988): p. 1.

5. Hitzelberger, Anton L., and Veaudry, Wallace F., "Are We Curing the Patient or Only Treating Symptoms." Army 38 (1988): p. 45.

6. Ibid., p. 46.

7. Kimble, Vesta, "Hospitals: Facilities Short of Money, Nurses." Army Times 33 (1988): p. 8.

8. Ibid., p. 8.

9. Kimble, Vesta, "Medical Benefits Shrinking." Army Times 35 (1988): p. 10.

10. Hitzelberger, et al., p. 43.

11. Ibid., p. 42.

12. Ibid., p. 43.

13. Ibid., p. 45.

14. Kimble, Vesta, "Trimmed CHAMPUS Plan to Expand." Army Times 37 (1988): p. 12.

II. LITERATURE REVIEW

The problem of providing information to patients and prospective patients is not confined to the military healthcare setting alone. The competition between hospitals and amongst providers in the civilian healthcare arena has led to an increased emphasis in the use of media. The provision of healthcare information has come of age in the past 10 years and runs the gamut from one on one provider to patient counseling, to sophisticated demographic analysis and marketing techniques.

This portion of the research paper will review related patient information research efforts that exist in the healthcare field, plus media and information techniques to include patient education, and healthcare marketing.

Patient Information Studies

Numerous studies involving the use of media such as videos and written information have been undertaken in the healthcare field during the past 10 years. Although no particular study set out to determine if one method of providing information to patients was better than another, several studies resulted in findings pertinent to this research project.

The settings of the majority of patient information studies took place in hospitals with healthcare clinics being the second setting of choice. The focus of these studies included many different conditions, and aspects of those conditions. Some were health promotion, for example, smoking cessation;[1] some focused on skill teaching, for example, breast examination;[2] others

intended to further patient knowledge, for example, drug information,[3] which is similar to the focus of this research project.

Of the studies that intended to increase knowledge,[4,5,6,7,8,9,10] all but one reported achieving their objective(s).[11] However, of the studies which had as their objective knowledge gain, only two conducted a long term follow-up. The follow-up showed that the immediate Post-test knowledge gain had disappeared. When the groups that had a video program were compared with a no-treatment control group, all reported that the group exposed to a video learned more than the control group. In five of the seven studies which compared a video program with other methods of presentation, video alone was as effective as any other method of presentation. In the remaining two studies, the group exposed to a video did better than groups that were given only written information. The results of these studies are consistent enough to conclude that patient education through the use of video presentation appears to be effective for short term knowledge gain. As a patient information delivery system, closed circuit T.V. videos can facilitate repeat viewing and therefore potentially enhance retention of knowledge.

Esdale and Harris[12] in evaluating patient education videos using closed circuit television concluded that it is most effective when promoted by staff and seen as reinforcing other educational activities. These same results were found in the American Hospital Association study of closed circuit television

conducted in the early 1980's. The key factor resulting in maximum use of video is its integration into all patient education activities.[13]

The use of video/television systems must never be considered a substitute for human interaction during patient education. The education process includes: needs assessment, timing, information giving, reinforcement and evaluation. Video/television contributes to the information giving and reinforcing part of the process. The other steps are dependent on staff support and follow-up. Viewing patient education videos can also simplify the process through stimulating patients to ask questions. Cassileth[14] concluded that patients were less threatened viewing a program at their bedside than in a group teaching setting which points to one of the most important aspects of learning, getting the audience to view the material in the first place. This is another way in which closed circuit television videos enhances viewing opportunities.

The main objective of most education/information programs involves knowledge changes. The ways in which knowledge changes are measured vary considerably, for example: different knowledge items selected, different data collection methods used, different weights given to the knowledge items selected, knowledge measured by spontaneous recall or by selection from alternatives, knowledge measured immediately after the communication or recalled after some time has elapsed, measures taken either of

the proportion of items recalled or of the total number of items correctly recalled.[15]

The methods of evaluation used can influence the knowledge change noted. Information programs can be designed to achieve high changes in knowledge scores by strictly limiting the knowledge items contained in the program. It is important to realize that knowledge changes, as measured by improvements in knowledge scores, are rather meaningless unless the measurement procedure is described.[16]

Knowledge changes can be expected to vary among the receivers of patient information programs. The following receiver factors may influence the changes: motivation, previous knowledge, anxiety level of receiver, or the communication setting.[17]

Receivers with a high level of general medical knowledge have in some studies learned more than those with a lower general medical knowledge level. However, in other studies no corresponding correlation has been found. The capacity to understand difficult texts can be expected to vary in the audience and this explains some of the variations in learning. To select the correct language and concept level, as well as knowledge level, in any patient information program is not an easy task. If too simple a text is selected then those with previous knowledge can lose their motivation to learn. If too difficult a text is chosen then those who have little knowledge quickly lose interest.[18]

It has been suggested that the observed difficulty in providing information for cancer patients undergoing chemotherapy can be explained by the patients protective coping mechanisms. The anxiety level of the receiver in such examples may influence their learning capacity, but there is also evidence that a receiver with an average level of anxiety may learn health information quicker than others.[19]

A number of media factors influence knowledge changes, for example: the credibility attributed to the sender by the receivers, the interest aroused by the message, the importance of the message as perceived by the receivers, the redundancy offered, the linguistic formulation of the message, the complexity of the issue, the communication media, and the communication situation.[20]

The credibility of the information source may influence the learning effect. However, it is not certain that all receivers perceive the sources in the same way.[21] Information receivers tend in general to learn things that they regard as important and to avoid unimportant elements.[22]

The recalled proportion of information communicated tends to decrease with the increasing number of communicated items and also may be influenced by the amount of information communicated in the first place. However, a second repetition in oral drug communication has been shown to be an effective way to reinforce and improve knowledge scores.[23]

Knowledge changes effected by different media have also been compared. Verbal information is most advantageous if potential possibilities for repetition, clarification and receiver questions are utilized.[24] However, there are many methodological problems involved in comparative media studies. For example, any unbiased comparison must involve holding media costs constant. It must also be recognized that one media may not be the optimal for all types of messages contained in patient information programs. The optimal media for knowledge changes is not necessarily that for achieving other effects. There have been no studies produced in the area to suggest which media are best for effecting which changes. However, it has been recognized that personal and written drug information can easily be combined and thus frequently facilitate learning.[25]

Acquiring drug information can also be made easier by involving the family in the learning process.[26] It is also known that the knowledge changes of a limited patient information program are not retained for a long period. The recalled knowledge levels tend to decrease over time if no reinforcement takes place.[27] It must also be noted that in a number of drug information programs the intended knowledge changes did not in fact occur.[28]

There are numerous studies that deal only with written patient information. The most common uses of written patient information appear to be in conjunction with drug education. Prescription drug education is one of the expanding areas of

patient oriented health information. Stimulated by the finding that about half of the patients prescribed chronic medications fail to adhere to their regimens, many commercial, public, and private institutions have devised and implemented programs to counsel and educate patients about prescribed drugs. An essential portion of many of these programs is the issuance of printed material which reinforces and augments verbal instructions. This written prescription drug information is furnished to patients in many forms, from brief instructional stickers to more elaborate brochures.[29]

Several studies dealt with the area of physician to patient counseling as a form of patient information. There are many reasons that highlight the necessity for informing patients more thoroughly in medical consultations. It has been argued that more information should be given because patients are currently dissatisfied with the amount they receive; that information which aids understanding can reduce pain and speed recovery; that satisfaction about information received causes patients to comply with advice; or that lack of information actually prevents patients from complying.[30]

There are also points of contention about patient information evolving from views about the nature and complexity of modern medical problems. Because both negative as well as positive outcomes can be expected from medical intervention, some believe patients require to be more fully involved in decision making and assume responsibility for healthcare decisions.

Developments in the legal doctrine of informed consent also suggest the need for careful attention to be paid to the task of informing patients.[31]

Patient Education

The review of studies concerning patient information in the healthcare field has shown the importance of educating patients and necessitates a review of patient education which has become an integral part of today's healthcare environment. Hospital regulatory agencies such as the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) and the Health Care Financing Administration (HCFA) require documentation that patient education be provided for hospitalized patients. As a result, hospitals are being forced to look creatively at alternate ways of fulfilling their patient education mandate.

Patient education is a complicated process of needs assessment, timing, information giving, reinforcement and evaluation. Simplifying the process will increase the likelihood of it occurring, and is the reason most hospitals use instructional media, such as pamphlets and television. As the workload increases and the average length of stay is reduced, the more labor intensive methods of one to one teaching and classroom presentation are no longer possible. There is also documented resistance to patient teaching among health professionals who are often poorly prepared in the area. In spite of these obstacles, the expectation that education is a part of hospital care is supported by professional groups and accrediting bodies.[32]

The American Hospital Associations (AHA) 1981 patient education policy states that patient education services should enable patients, and their families, when appropriate, to make informed decisions about their health, to manage their illnesses, and to implement follow-up care at home. The American Hospital Association has developed patient education resources which includes publications, videos, and a program of workshops to train patient education coordinators.[33]

Although patient education has been advocated for years, it offers new potential during this time of increased healthcare information. The growing emphasis on cost containment, appropriate utilization of services, and self responsibility for health has given patient education a new importance in the view of healthcare facilities.

Several other factors have contributed to this current interest in patient education. First is the poor state of health education in the United States. Second is the impact of chronic disease, much of which is related to lifestyle, and therefore, preventable. Third is the fact that individuals are more receptive to health education and more motivated to modify behavior that increases health risks when illness has brought them into contact with the healthcare system. Finally, hospitals have found patient education to be an effective means of improving the quality of care by reducing patients' anxiety and by making them informed and active participants in the therapeutic process.[34]

Evidence is accumulating that health education can reduce the cost of hospital care.[35] Studies have also shown that patient education can contribute to improved compliance with medical regimens,[36] to more appropriate utilization of healthcare services,[37] to reduced patient anxiety in response to medical treatment, and to shorter postoperative convalescent periods.[38]

Healthcare Marketing

Any review of patient information literature would be remiss without mentioning the newest information trend in healthcare; marketing. During the past decade healthcare marketing has received considerable attention in health administration literature. While competition and reimbursement issues are at the core of hospital problems today, marketing is the key to the solutions. Marketing in todays competitive environment is no longer a luxury, but a necessity. Although hospital marketing is in its evolutional phase, it has already made significant contributions for both the healthcare delivery organizations and healthcare consumers.[39]

Prior to the 1980's, hospitals did a poor job from the marketing point of view because marketing was not very high on the list of priorities for most hospitals. But in today's healthcare environment, where consumers are more knowledgeable and competition is more fierce, hospitals' marketing needs have shifted dramatically. Hospitals need to develop firm marketing programs concentrating on research, data analysis and marketing

communications.[40]

Marketing did not increase its popularity with the healthcare field until Philip Kotler introduced the concept of social marketing to the not-for-profit healthcare organizations. Kotlers definition of marketing is still the basis for most definitions of healthcare marketing: "Marketing is the analysis, planning, implementation, and control of carefully formulated programs designed to bring about voluntary exchanges of values with target markets for the purpose of achieving organizational objectives. It relies heavily on designing the organization's offering in terms of the target markets' needs and desires, and on using effective pricing, communication and distribution to inform, motivate, and service the markets."[41]

Until recently, the traditional marketing concepts of price, product, positioning, and promotion were not utilized in not-for-profit healthcare institutions. Now, those institutions that effectively apply the "four P's" of marketing will better their chances for survival in the future.[42]

The rapid growth of marketing in healthcare institutions is continuing as shown by a recent marketing survey. According to this survey, sixty-four percent of surveyed hospital marketers described their facilities as "market driven" in 1984. One year later seventy-seven percent of marketers surveyed reported that their hospitals were "market driven". The increased emphasis on marketing is also reflected in the titles marketers themselves now possess. Whereas only seventeen percent of 1984's marketers

could claim marketing titles, in 1985 nearly thirty-four percent call themselves "marketers".[43]

The goals of marketers in 1985 did not change dramatically from 1984. Public relations as a goal declined by eight percent while thirty-nine percent of marketers felt that increasing patient volume was their responsibility, which was up twenty-four percent from 1984.[44]

Reports of media used by hospital marketers' in their advertising campaigns show a diversified media mix for the typical program. Print advertising, newspapers and magazines, is the most common medium by far at ninety-four percent. Seventy-three percent of hospital marketers favor radio, and direct mail is important to sixty-five percent. Television, newsletters, and bill boards are not employed nearly as often.[45]

Some of the trends in healthcare marketing in the future include: coordinated marketing campaigns with message repetition, from image advertising to product specific advertising, from product specific campaigns to market specific campaigns, from mass media advertising to integrated communications campaigns, and greater involvement in market research, product design, and marketing communications.[46]

ENDNOTES
Chapter 2

1. Li, B., Coates T., "Smoking Cessation With Young Women In Public Family Planning Clinics: The Impact of Physician Messages and Waiting Room Media." Preventive Medicine 13 (1984): p. 477.

2. Assaf, A., Cummings K., Graham, S., "Comparison of Three Methods of Teaching Women How to Perform Breast Self-Examination." Health Education Quarterly 12 (1985): p. 259.

3. Haggerty, James A., Berardi, R., "Evaluation of Four Approaches to Teaching Patients About Digoxw." American Journal of Hospital Pharmacy 35 (1978): p. 1207.

4. Ibid., p. 1207.

5. Alkhateeb, William, and Riggs, M., "A Comparison of Three Educational Techniques Used In a Venereal Disease Clinic." Public Health Report 90 (1975): p. 159.

6. Nay, William R., "A Systematic Comparison of Instructional Techniques For Patients." Behavioral Therapy 6 (1975): p. 14.

7. Uzark, Kenneth, and Klas, David, "Use of Videotape in the Preparation of Children For Cardiac Catheterization." Pediatric Cardiology 3 (1982): p. 287.

8. McCulloch, D., and Mitchell, R., "Influence of Imaginative Teaching of Diet on Compliance and Metabolic Control in Insulin Dependent Diabetics." British Medical Journal 287 (1983): p. 1858.

9. Osquthorpe, N., Roper, J., "The Effect of Teaching Medication Knowledge." Western Journal of Nursing Research 5 (1983): p. 205.

10. Marshall, William and Rothenberger, L., "The Efficiency of Personalized Audiovisual Patient Education Material." Journal of Family Practice 19 (1984): p. 659.

11. Osquthorpe, et al., p. 205.

12. Esdale, A., and Harris, H., "Evaluation of a Closed-Circuit Television Patient Education Program: Structure, Process and Outcome." Patient Education Counseling 7 (1985): p. 193.

13. Closed Circuit Television and Patient Education: A Research Manual. American Hospital Association Center For Health Promotion, 1982: p. 1.

14. Cassileth, B., "Effect of Audiovisual Cancer Programs on Patients and Facilities." Journal of Medical Education 57 (1982): p. 54.

15. Lilja, John, "The Evaluations of Drug Information Programs." Social Science Medicine 21 (1985): p. 410.

16. Joubest, Paul, "Patient Package Inserts." Clinical Pharmacy Therapy 18 (1975): p. 507.

17. Lilja, et al., p. 410.

18. Eaton, Mark and Halloway, R., "Patient Comprehension of Written Drug Information." American Journal of Hospital Pharmacy 37 (1980): p. 240.

19. Dodd, Mark, "Chemotherapy: Helping Patients to Know the Drugs They are Receiving and Their Possible Side Effects." Cancer Nursing 4 (1981): p. 311.

20. Lilja, et al. p. 410.

21. Sinnet, E., "Credibility of Sources of Information About Drugs." Psychology Report 36 (1975): p. 299.

22. Ley, Paul, "Primacy, Rated Importance, and the Recall of Medical Statements." Journal of Health and Social Behavior 13 (1972): p. 311.

23. Heston, James, "Evaluating a Learning Device for Juvenile Diabetic Children." Diabetes Care 3 (1980): p. 668.

24. Kupst, M., "Evaluation of Methods to Improve Communication In The Physician-Patient Relationship." American Journal of Orthopsychiatry 45 (1975): p. 420.

25. Morris, Louis A., "Effects of Written Drug Information on Patient Knowledge and Compliance." American Journal of Hospital Pharmacy 69 (1979): p. 47.

26. Leary, J., "Self-Administered Medications." American Journal Nursing 71 (1971): p. 1193.

27. Darr, Mark, "Content and Retention Evaluation of an Audiovisual Patient Education Program on Bronchodilators." American Journal of Hospital Pharmacy 38 (1981): p. 672.

28. Malahy, B., "The Effect of Instruction and Labelling on the Number of Medication Errors Made by Patients at Home." American Journal of Hospital Pharmacy 23 (1966): p. 283.

29. Mazis, Michael and Morris, Louis, A., "Patients Attitudes About Two Forms of Printed Oral Contraceptive Information." Medical Care 12 (1978): p. 1045.

30. Tuckett, David and Williams, Anthony, "Approaches to the Measurement of Explanation and Information-Giving in Medical Consultations: A Review of Empirical Studies." Social Science Medicine 18 (1984): p. 571.

31. Ibid., p. 571.

32. Forgay, James, "Bare Bones Approach to Patient Teaching." Patient Education News April (1985): p. 9.

33. The Hospital's Responsibility For Patient Education Services. American Hospital Association, Chicago, 1981: p. 1.

34. Blackwell, Barry, "Drug Therapy Patient Compliance." New England Journal of Medicine 289 (1973): p. 249.

35. Green, Lawrence, W., "Potential of Health Education Includes Cost Effectiveness." Hospitals 50 (1976): p. 57.

36. Marston, Mary, V., "Compliance With Medical Regimens: A Review of the Literature." Nursing Research 19 (1970): p. 312.

37. Schroede, Steven, "Lowering Broken Appointment Rates at a Medical Clinic." Medical Care 11 (1973): p. 75.

38. Rosenberg, Stanley, G., "Patient Education Leads to Be Her Care For Heart Patients." Public Health Reports 86(1971): p. 793.

39. Steiber, Steven, R. and Boscarino, J., "A Progress Report on Hospital Marketing." Hospitals 58 (1984): p. 98.

40. "Marketing is Key to PR Professionals Roles." Hospitals 59 (1985): p. 60.

41. Dodson, Don, C., "Health Care Marketing: Advancements But No Cigar." Marketing Strategies for Human and Social Service Agencies (1985): p. 16.

42. Meyberg, Lili, "Hospital Marketing: A Case History." Southern Hospitals 51 (1983): p. 15.

43. Steiber, Steven, R., and Boscorino, Joseph, A., "Hospital Marketing More Sophisticated: Survey." Hospitals 59 (1985): p. 73.

44. Ibid., p. 76.

45. Ibid., p. 77.

46. House, Sandra, M., "What's New for Newcomers." Healthcare Executive 3 (1988): p. 24.

III. Discussion

Overview

A 16 question True or False questionnaire (Appendix A) was distributed to approximately 210 study group members in the MACH Healthcare region. The sample population was randomly selected from patients presenting to the MACH ACCESS clinic, from patients requesting CHAMPUS information in the HBA's office, and from retirees participating in the annual Armed Forces/Retirees Appreciation Day held at Fort Jackson. The first 180 completed questionnaires were utilized to complete the four groups in accordance with the Solomon Four - Group Design. The questions on the survey were formulated from information obtained form CHAMPUS Fact Sheet - 11 (1983), titled, "Your Health Benefits in a Nutshell", and from the CHAMPUS videotape of the same name. The MACH HBA's helped in the design of the questionnaire and the wording of the questions. The responses to the questionnaires were scored (1 point per correct answer) and ranked per each 30 person group, and analyzed by both the Mann-Whitney U test and the Kruskal-Wallis K test. Demographic Data was collected and presented in the form of frequency and percentage information.

The Mann-Whitney U test and the Kruskal-Wallis K test are nonparametric statistical tests designed to test for the difference between two independent means. These tests are applied in situations in which samples are drawn from the same population but different "treatments" are used on each group. The Mann-Whitney U test is utilized when there are two

independent samples and the Kruskal-Wallis K test is appropriate in situations where more than two samples are involved.

Demographic Data

Tables 2 through 6 provide demographic data presented in the form of frequency/percentage information for each group and the study as a whole.

Table 2. Experimental Group #1

Beneficiary Status	Frequency/Percentage	
Active Duty Service Member	6	20%
Dependent of Active Duty Service Member	6	20%
Retired Service Member	9	30%
Dependent of Retired Service Member	9	30%
Sex		
Male	14	47%
Female	16	53%
Age		
Under 18		
18-35	6	20%
36-50	14	47%
51-64	10	33%
Over 64		
Ethnic Background		
Black	3	10%
White	27	90%
Hispanic		
Oriental		
Other		
Education Level		
Non-High School Graduate		
High School Graduate or G.E.D.	12	40%
Some College	11	37%
4 year College Graduate	4	13%
Advanced College Degree	3	10%

Table 3. Control Group #1

Beneficiary Status	Frequency	Percentage
Active Duty Service Member	4	13%
Dependent of Active Duty Service Member	5	17%
Retired Service Member	12	40%
Dependent of Retired Service Member	9	30%
Sex		
Male	16	53%
Female	14	47%
Age		
Under 18		
18-35	8	27%
36-50	9	30%
51-64	13	43%
Over 64		
Ethnic Background		
Black	6	20%
White	20	67%
Hispanic	3	10%
Oriental	1	3%
Other		
Education Level		
Non-High School Graduate	3	10%
High School Graduate or G.E.D.	15	50%
Some College	9	30%
4 year College Graduate	3	10%
Advanced College Degree		

Table 4. Experimental Group #2

Beneficiary Status	Frequency/Percentage	
Active Duty Service Member	2	6%
Dependent of Active Duty Service Member	3	10%
Retired Service Member	11	37%
Dependent of Retired Service Member	14	47%
Sex		
Male	15	50%
Female	15	50%
Age		
Under 18	2	7%
18-35	6	20%
36-50	6	20%
51-64	15	50%
Over 64	1	3%
Ethnic Background		
Black	7	23%
White	20	67%
Hispanic	2	7%
Oriental	1	3%
Other		
Education Level		
Non-High School Graduate	4	13%
High School Graduate or G.E.D.	9	30%
Some College	15	50%
4 year College Graduate	2	7%
Advanced College Degree		

Table 5. Control Group #2

Beneficiary Status	Frequency	Percentage
Active Duty Service Member	4	14%
Dependent of Active Duty Service Member	6	20%
Retired Service Member	10	33%
Dependent of Retired Service Member	10	33%
Sex		
Male	11	37%
Female	19	63%
Age		
Under 18	0	0%
18-35	11	37%
36-50	6	20%
51-64	13	43%
Over 64	0	0%
Ethnic Background		
Black	9	30%
White	18	60%
Hispanic	0	0%
Oriental	2	7%
Other	1	3%
Education Level		
Non-High School Graduate	3	10%
High School Graduate or G.E.D.	17	57%
Some College	7	23%
4 year College Graduate	3	10%
Advanced College Degree	0	0%

Table 6. Study Group

Beneficiary Status	Frequency	Percentage
Active Duty Service Member	16	13%
Dependent of Active Duty Service Member	20	17%
Retired Service Member	42	35%
Dependent of Retired Service Member	42	35%
Sex		
Male	56	47%
Female	64	53%
Age		
Under 18	2	2%
18-35	31	26%
36-50	35	29%
51-64	51	42%
Over 64	1	1%
Ethnic Background		
Black	25	21%
White	85	71%
Hispanic	5	4%
Oriental	4	3%
Other	1	1%
Education Level		
Non-High School Graduate	10	8%
High School Graduate or G.E.D.	53	44%
Some College	42	35%
4 year College Graduate	12	10%
Advanced College Degree	3	3%

Table 7 provides the mean test score for each group to include pre-tests for Experimental Group 1 and Control Group 1 and all four post-tests.

TABLE 7. Mean Score For Each Group

GROUP	MEAN SCORE (Pre-Test)	MEAN SCORE (Post-test)
Experimental Group 1	10	11.9
Control Group 1	10.1	9.6
Experimental Group 2	N/A	11.3
Control Group 2	N/A	10.3

Tables 8 through 13 provide the mean test score for each group, both pre-test and post-test, by demographics.

Table 8. Experimental Group 1 (Pre-Test)

Beneficiary Status	Mean Score
Active Duty Service Member	11
Dependent of Active Duty Service Member	9.5
Retired Service Member	9.2
Dependent of Retired Service Member	10.2
Sex	
Male	9.8
Female	10.1
Age	
Under 18	N/A
18-35	10
36-50	10.4
51-64	9.4
Over 64	N/A
Ethnic Background	
Black	9.3
White	10
Hispanic	N/A
Oriental	N/A
Other	N/A
Education Level	
Non-High School Graduate	N/A
High School Graduate or G.E.D.	9.4
Some College	10.1
4 year College Graduate	10.7
Advanced College Degree	10.7

Table 9. Experimental Group 1 (Post-Test)

Beneficiary Status	Mean Score
Active Duty Service Member	11.2
Dependent of Active Duty Service Member	13
Retired Service Member	11.6
Dependent of Retired Service Member	12.1
Sex	
Male	11.5
Female	12.3
Age	
Under 18	N/A
18-35	10.2
36-50	12.5
51-64	12.1
Over 64	N/A
Ethnic Background	
Black	13
White	11.8
Hispanic	N/A
Oriental	N/A
Other	N/A
Education Level	
Non-High School Graduate	N/A
High School Graduate or G.E.D.	12.5
Some College	10.2
4 year College Graduate	12
Advanced College Degree	11.3

Table 10. Control Group 1 (Pre-Test)

Beneficiary Status	Mean Score
Active Duty Service Member	10
Dependent of Active Duty Service Member	10.6
Retired Service Member	10.3
Dependent of Retired Service Member	9.4
Sex	
Male	10.3
Female	9.9
Age	
Under 18	N/A
18-35	10.4
36-50	9.4
51-64	10.3
Over 64	N/A
Ethnic Background	
Black	10.8
White	10.1
Hispanic	8.7
Oriental	10
Other	N/A
Education Level	
Non-High School Graduate	8.7
High School Graduate or G.E.D.	10.3
Some College	9.8
4 year College Graduate	11
Advanced College Degree	N/A

Table 11. Control Group 1 (Post-Test)

Beneficiary Status	Mean Score
Active Duty Service Member	9.7
Dependent of Active Duty Service Member	9.6
Retired Service Member	9.4
Dependent of Retired Service Member	9.9
Sex	
Male	9.5
Female	9.8
Age	
Under 18	N/A
18-35	9.6
36-50	9.7
51-64	9.6
Over 64	N/A
Ethnic Background	
Black	9.8
White	9.5
Hispanic	9.7
Oriental	10
Other	N/A
Education Level	
Non-High School Graduate	9.7
High School Graduate or G.E.D.	9.8
Some College	9.3
4 year College Graduate	9.7
Advanced College Degree	N/A

Table 12. Experimental Group 2

Beneficiary Status	Mean Score
Active Duty Service Member	11
Dependent of Active Duty Service Member	9
Retired Service Member	11.3
Dependent of Retired Service Member	11.8
Sex	
Male	11
Female	11.5
Age	
Under 18	9.5
18-35	10.3
36-50	12
51-64	11.5
Over 64	12
Ethnic Background	
Black	11
White	11.1
Hispanic	13
Oriental	13
Other	N/A
Education Level	
Non-High School Graduate	10.3
High School Graduate or G.E.D.	11.2
Some College	11.3
4 year College Graduate	13
Advanced College Degree	N/A

Table 13. Control Group 2

Beneficiary Status	Mean Score
Active Duty Service Member	10.5
Dependent of Active Duty Service Member	10.7
Retired Service Member	9.6
Dependent of Retired Service Member	10.6
Sex	
Male	9.5
Female	10.7
Age	
Under 18	N/A
18-35	10.5
36-50	10.2
51-64	10.1
Over 64	N/A
Ethnic Background	
Black	10.9
White	9.8
Hispanic	11
Oriental	12
Other	N/A
Education Level	
Non-High School Graduate	10.7
High School Graduate or G.E.D.	10.6
Some College	9.4
4 year College Graduate	10
Advanced College Degree	N/A

Analysis of Individual Survey Questions

Tables 14 through 19 provide the frequency and percentage of questions missed for each group to include the pre-tests for Experimental Group 1 and Control Group 1 and all four post-tests.

TABLE 14. Experimental Group #1 (Pre-Test)

Questions	Frequency Missed	Percentage Missed
#1	24	80%
#2	2	7%
#3	28	93%
#4	6	20%
#5	4	13%
#6	7	23%
#7	1	3%
#8	0	0%
#9	22	73%
#10	10	33%
#11	13	43%
#12	7	23%
#13	0	0%
#14	16	53%
#15	20	67%
#16	21	70%

TABLE 15. Experimental Group #1 (Post-Test)

Questions	Frequency Missed	Percentage Missed
#1	7	23%
#2	7	23%
#3	21	70%
#4	5	17%
#5	6	20%
#6	4	13%
#7	4	13%
#8	1	3%
#9	15	50%
#10	3	10%
#11	5	17%
#12	8	27%
#13	2	7%
#14	12	40%
#15	16	53%
#16	7	23%

TABLE 16. Control Group #1 (Pre-Test)

Questions	Frequency Missed	Percentage Missed
#1	25	83%
#2	5	17%
#3	26	87%
#4	5	17%
#5	2	7%
#6	5	17%
#7	2	7%
#8	4	13%
#9	21	70%
#10	9	30%
#11	17	57%
#12	8	27%
#13	0	0%
#14	18	60%
#15	13	43%
#16	18	60%

TABLE 17. Control Group #1 (Post-Test)

Questions	Frequency Missed	Percentage Missed
#1	27	90%
#2	8	27%
#3	25	83%
#4	4	13%
#5	2	7%
#6	5	17%
#7	1	3%
#8	4	13%
#9	24	80%
#10	10	33%
#11	16	53%
#12	10	33%
#13	0	0%
#14	20	67%
#15	16	53%
#16	17	57%

TABLE 18. Experimental Group #2

Questions	Frequency Missed	Percentage Missed
#1	16	53%
#2	10	33%
#3	27	90%
#4	4	13%
#5	4	13%
#6	2	7%
#7	4	13%
#8	2	7%
#9	10	33%
#10	8	27%
#11	2	7%
#12	4	13%
#13	0	0%
#14	4	13%
#15	23	77%
#16	10	33%

TABLE 19. Control Group #2

Questions	Frequency Missed	Percentage Missed
#1	25	83%
#2	5	17%
#3	26	87%
#4	5	17%
#5	1	3%
#6	4	13%
#7	2	7%
#8	3	10%
#9	21	70%
#10	8	27%
#11	17	57%
#12	8	27%
#13	0	0%
#14	16	53%
#15	13	43%
#16	18	60%

In addition to analyzing the performance of the four groups, individual questions on the survey were examined to identify specific areas that are not well understood within the MACH Healthcare Region. Six questions (1,3,9,14,15,16) were repeatedly missed by a majority of the respondents.

There appears to be a misunderstanding among the respondents concerning the fact that CHAMPUS does not cover active duty service members. Although this lack of knowledge may appear to be inconsequential, it may indicate an overall lack of knowledge about CHAMPUS.

The area of deductibles is also misunderstood. This lack of knowledge about deductibles is disturbing because it affects the costs that families must pay for healthcare.

Another area of concern involves the administrative aspects of CHAMPUS such as non-availability statements and CHAMPUS claims. The lack of knowledge in this area could lead to frustrations and non-compliance on the part of the beneficiary and a possible decrease in CHAMPUS use. The lack of knowledge in this area might be offset, however, due to the overwhelmingly correct response rate to question #13. The fact that the respondents were aware of the existence of the HBA's is a step in the right direction.

Analysis Of The Study Group

The importance and strength in the design of the Solomon Four-Group Design is brought out in the statistical analysis of the study group. Tables 20 through 24 provide statistical

analysis of the study group by use of the Mann-Whitney U test in accordance with the Solomon Four-Group Design. Table 25 provides statistical analysis of the study group as a whole by use of the Kruskal-Wallis K test. The formula for the Mann-Whitney U test is as follows:

$$U_a = n_a \cdot n_b + \frac{(n_b)(n_b + 1)}{2} - R_b$$

$$U_b = n_a \cdot n_b + \frac{(n_a)(n_a + 1)}{2} - R_a$$

and U, the test statistic, will be the smaller of U_a and U_b.

The test decision is made with the aid of the standard normal Z. The formulas used to determine the Z statistics are as follows:

$$\mu_U = \frac{n_a \cdot n_b}{2} \qquad \sigma_U = \sqrt{\frac{n_a n_b (n_a + n_b + 1)}{12}} \qquad z = \frac{U - \mu_U}{\sigma_U}$$

The Null Hypothesis is then tested, at the .05 level of significance, by use of the test statistic Z. The critical value of the standard normal Z at the .05 level of significance is - 1.65.

TABLE 20. Experimental Group 1 vs. Experimental Group 2 (Post-Test)

U Test Statistic = 379

$$Z = \frac{379 - 450}{67.64} = \frac{-1.05}{}$$

The critical value is -1.65, therefore, fail to reject Ho.

The failure to reject the Ho in the comparison of Experimental Group 1 to Experimental Group 2 denotes that there was no difference in the means between the two groups. This indicates that the difference between the use of the pamphlet and the videotape in increasing the CHAMPUS knowledge level of the study group was statistically not significant.

TABLE 21. Pre-Test vs. Post-Test For Experimental Group 1

U Test Statistic = 196

$$Z = \frac{196 - 450}{67.64} = \frac{-3.76}{}$$

The critical value is -1.65, therefore, reject Ho.

The rejection of Ho in the comparison of the Pre-Test to the Post-Test of Experimental Group 1 signifies that there was a difference in the means between the scores of the Pre-Test and the Post-Test. This suggests that the difference between the Pre-Test measure (Questionnaire) and the Post-Test measure is due to the independent variable (Pamphlet), and is statistically significant.

TABLE 22. Experimental Group 1 vs. Control Group 1 (Pre-Test)

U Test Statistic = 435

$$Z = \frac{435 - 450}{67.64} = \frac{-0.22}{}$$

The critical value is -1.65, therefore, fail to reject Ho.

The failure to reject the H_0 in the comparison of Experimental Group 1 to Control Group 1 (Pre-Test) implies that there was no difference in the means between the two groups. This indicates that the pre-test CHAMPUS knowledge between the two groups was statistically not significant. The use of pre-tests in these two groups insures that any testing influences on the post-test should be the same for both groups. The statistical analysis utilized in comparing the pre-test results show precisely how similar the two groups are.

TABLE 23. Experimental Group 1 vs. Control Group 1 (Post-Test)

U Test Statistic = 149

$$Z = \frac{149 - 450}{67.64} = \frac{-4.45}{}$$

The critical value is -1.65, therefore, reject Ho.

The rejection of Ho in the comparison of the post-tests of Experimental Group 1 and Control Group 1 connotes that there was a difference in the means between post-test scores of the two groups. This signifies that the difference between the post-test measure (Questionnaire) is due to the independent variable (Pamphlet), and is statistically significant. The use of control groups provides confidence that any difference between experimental and control groups on the dependent variable (Questionnaire) are due to the effect of the independent variable (Pamphlet or Videotape).

TABLE 24. Experimental Group 2 vs. Control Group 2

U Test Statistic - 255

$$Z = \frac{255 - 450}{67.64} = \frac{-2.88}{}$$

The critical value is -1.65, therefore, reject Ho.

The rejection of Ho in the comparison of Experimental group 2 and Control Group 2 imports that there was a difference in the means between the post-test scores of the two groups. This signifies that the difference between the post-test measure (Questionnaire) is due to the independent variable (Videotape), and is statistically significant. The use of control groups provides confidence that any difference between experimental and control groups on the dependent variable (Questionnaire) are due

to the effect of the independent variable (Pamphlet or Videotape).

The formula for the Kruskal-Wallis K test is as follows:

$$K = \frac{12}{n(n+1)} \sum \frac{R_j^2}{n_j} - 3(n+1)$$

where the sampling distribution of the K statistic is approximated by the Chi-Square distribution when all sample sizes are at least 5.

The approximate number of degrees of freedom is K-1, the level of significance is .05. The Null Hypothesis (Ho=u1=u2=u3=u4) is tested using the Chi-Square distribution with 3 degrees of freedom at the .05 level of significance, providing a critical value of 7.815.

TABLE 25. Comparison Of The Study Group Using Kruskal-Wallis

(0.0008264) (40333.3 + 77673.4 + 193282.1 + 165689) - 363= 31.174

The critical value is 7.815, therefore, reject Ho.

The rejection of Ho in the comparison of the post-tests between the four groups indicates that there was a difference in the means of the post-test scores. This signifies that there are differences among the four groups and verifies the individual results of the preceding Mann-Whitney U tests.

IV. CONCLUSION

Summary

The intent of this paper has been to determine which of two methods of providing CHAMPUS information to beneficiaries is more effective in increasing beneficiary knowledge of the CHAMPUS program. Based on the results of a 16 question survey, the difference between the two methods, a pamphlet and videotape, as analyzed by the Mann-Whitney U test and Kruskral-Wallis K test was not statistically significant. However, the difference between providing either the pamphlet or videotape to the study group, and not providing any information to the study group was shown to be statistically significant. This increase in the knowledge level of the study group after the provision of information is congruent with the current literature on the subject as well.

Recommendations

The following recommendations are proffered: first, the provision of CHAMPUS information to CHAMPUS beneficiaries and active duty service members should be continued.

Second, the use of pamphlets or videotapes should not take the place of one to one counseling by the HBA's, but should supplement that information.

Third, the videotape and the pamphlet should be used to provide CHAMPUS information in all the clinics of the hospital, not just the HBA office.

Finally, while both the pamphlet and the videotape were shown to be similarly effective in increasing knowledge for a short term duration, beneficiaries have the ability to re-read the pamphlet information at a later time which makes the pamphlet information method more useful to the beneficiaries than the videotape information method.

APPENDIX A.

CHAMPUS QUESTIONNAIRE

CHAMPUS QUESTIONNAIRE

Please place an X in the box beside the statement which best answers the question being addressed.

A. Beneficiary Status: [ ] Active Duty Service Member

[ ] Dependent of Active Duty Service Member

[ ] Retired Service Member

[ ] Dependent of Retired Service Member

B. Sex: [ ] Male [ ] Female

C. Age: [ ] under 18

[ ] 18 - 35

[ ] 36 - 50

[ ] 51 - 64

[ ] over 64

D. Ethnic Background: [ ] Black

[ ] White

[ ] Hispanic

[ ] Oriental

[ ] Other

E. Highest Education Level: [ ] non High School Graduate

[ ] High School Graduate or GED

[ ] some College

[ ] 4 year College Graduate

[ ] advanced College degree

Please circle the correct answer (**T** for True or **F** for False) for each question about the CHAMPUS program.

1. Active duty members are not covered by CHAMPUS. T or F

2. CHAMPUS covers both outpatient and inpatient medical care for all routine care. T or F

3. CHAMPUS has no deductible for inpatient care when you stay overnight in the hospital. T or F

4. CHAMPUS has no deductible for outpatient care for dependents of active duty service members. T or F

5. The yearly deductible for CHAMPUS outpatient care is $150. T or F

6. CHAMPUS is a cost sharing program. T or F

7. Persons eligible for CHAMPUS should get their health care through CHAMPUS before they use a uniformed service medical facility. T or F

8. All civilian health care providers accept CHAMPUS assignment. T or F

9. A "non-availability" statement should be obtained after receiving non-emergency inpatient care under CHAMPUS.
T or F

10. CHAMPUS claims should be filed first with CHAMPUS and secondly with any other health insurance you may have.
T or F

11. Retirees who are eligible for MEDICARE (part A) are not covered by CHAMPUS. T or F

12. You can purchase CHAMPUS supplemental insurance to cover your cost share if you are CHAMPUS eligible. T or F

13. There is a Health Benefits Advisor (HBA) at all uniformed service hospitals. T or F

14. The HBA should be the person who keeps all copies of the CHAMPUS claims. T or F

15. All CHAMPUS claims go to the claims processor for the state where you reside. T or F

16. CHAMPUS claims should be filed by December 1st of the year after the year in which you received care. T or F

Bibliography

Government Publications and Documents

U.S. Department of Defense. Office of the Civilian Health and Medical Program of the Uniformed Services. CHAMPUS Handbook. CHAMPUS PAM No. 6010-46-H. Aurora, Col.: CHAMPUS, January 1983.

U.S. Department of Health, Education, and Welfare. Civilian Health and Medical Program of the Uniformed Services. DOD Regulation 6010.8R. Washington, DC: Government Printing Office, January 10, 1977.

U.S. Department of Defense. Military Care CHAMPUS: Your Health Benefits in a Nutshell. DOD CHAMPUS FS-11 (1983). Aurora, Col.: CHAMPUS, 1987.

U.S. Department of the Army. Handbook on Retirement and services for Army Personnel and Their Families. DA PAM No. 600-6. Washington, DC: Government Printing Office, August 1, 1982.

Pamphlets

Closed Circuit Television and Patient Education: A Research Manual. American Hospital Association Center For Health Promotion, 1982.

The Hospital's Responsibility for Patient Education Services. American Hospital Association, Chicago, 1981.

Videos

Military Care CHAMPUS: "Your Health Benefits in a Nutshell." Videocassette. CHAMPUS Video, 1983. 15 minutes.

Books

Monette, Ducine, R., Sullivan, Thomas, J. and Delong, Cornell, R., Applied Social Research. New York, NY: CBS College Publishing, 1986.

Periodicals

Alkhateev, William, Riggs, M., "A Comparison of Three Educational Techniques Used in a Venereal Disease Clinic." Public Health Report 90 (1975): 159-164.

Assof, A., Cummings K., Graham, S., "Comparison of Three Methods of Teaching Women How to Perform Breast Self-Examination." Health Education Quarterly 12 (1985): 259-272.

Blackwell, Barry, "Drug Therapy Patient Compliance." New England Journal of Medicine 289 (1973): 249-252.

Cassileth, B., "Effect of Audiovisual Cancer Programs on Patients and Families." Journal of Medical Education 57 (1982): 54-59.

Darr, Mark, "Content and Retentive Evaluation of an Audiovisual Patient Education Program on Bronchodilators." American Journal of Hospital Pharmacy 38 (1981): 672-675.

Dodd, Mark, "Chemotherapy: Helping Patients to Know the Drugs They are Receiving and Their Possible Side Effects." Cancer Nursing 4 (1981): 311-318.

Dodson, Don, C., "Healthcare Marketing: Advancements But No Cigar." Marketing Strategies for Human and Social Service Agencies (1985): 13-23.

Eaton, Mark, Halloway R., "Patient Comprehension of Written Drug Information." American Journal of Hospital Pharmacy 37 (1980): 240-243.

Esdale, A., Harris, H., "Evaluation of a Closed-Circuit Television Patient Education Program: Structure, Process and Outcome." Patient Education Counseling 7 (1985): 193-215.

Forgay, James, "Bare Bones Approach to Patient Teaching." Patient Education News April (1985): 9-10.

Green, Lawrence, W., "Potential of Health Education Includes Cost Effectiveness." Hospitals 50 (1976): 57-61.

Haggerty, James A., Berardi, R., "Evaluation of Four Approaches to Teaching Patients about Digoxin." American Journal of Hospital Pharmacy 35 (1978): 1207-1212.

Heston, James, "Evaluating a Learning Device for Juvenile Diabetic Children." Diabetes Care 3 (1980): 668-671.

Hitzelberger, Anton L., and Veaudry, Wallace F. "Are we Curing the Patient or Only Treating Symptoms?" Army. 38 (1988): 42-50.

House, Sandra., M., "What's New for Newcomers." Healthcare Executive 3 (1988): 22-25.

Joubert, Paul, "Patient Package Inserts." Clinical Pharmacy Therapy 18 (1975): 507-513.

Kimble, Vesta, "Budget Breeding Health Crunch." Army Times 33 (1988): 10.

Kimble, Vesta, "Hospitals: Facilities Short of Money, Nurses." Army Times 33 (1988): 1,8.

Kimble, Vesta, "Medical Benefits Shrinking." Army Times 35 (1988): 10.

Kimble, Vesta, "Trimmed CHAMPUS Plan to Expand." Army Times 37 (1988): 12.

Kupst, M., "Evaluation of Methods to Improve Communication in the Physician-Patient Relationship." American Journal of Orthopsychiatry 45 (1975): 420-429.

Leary, J., "Self-Administered Medications." American Journal of Nursing 71 (1971): 1193-1194.

Ley, Paul, "Primacy, Rated Importance, and the Recall of Medical Statements." Journal of Health and Social Behavior 13 (1972): 311-317.

Li, V., Coates T., "Smoking Cessation With Young Women in Public Family Planning Clinics: The impact of physician messages and waiting room media." Preventive Medicine 13 (1984): 477-489.

Lilja, John, "The Evaluations of Drug Information Programs." Social Science Medicine 21 (1985): 407-414.

Malahy, B., "The Effect of Instruction and Labelling on the Number of Medication Errors Made by Patients at Home." American Journal of Hospital Pharmacy 23 (1966): 283-292.

"Marketing is Key to PR Professionals Roles." Hospitals 59 (1985): 60-62.

Marshal, William, Rothenberger, L., "The Efficacy of Personalized Audiovisual Patient Education Material." Journal of Family Practice 19 (1984): 659-663.

Morston, Mary V., "Compliance with Medical Regimens: A Review of the Literature." Nursing Research 19 (1970): 312-323.

Mazis, Michael, Morris, Louis, A., "Patients Attitudes About Two Forms of Printed Oral Contraceptive Information." Medical Care 12 (1978): 1045-1054.

McCullock, D., Mitchell, R., "Influence of imaginative Teaching of Diet on Compliance and Metabolic Control in Insulin Dependent Diabetes." British Medical Journal 287 (1983): 1858-1861.

Meyberg, Lili, "Hospital Marketing: A Case History." Southern Hospitals 51 (1983): 15-17.

Morris, Louis, A., "Effect of Written Drug Information on Patient Knowledge and Compliance." American Journal of Hospital Pharmacy 69 (1979): 47-52.

Nay, William R., "A Systematic Comparison of Instructional Techniques for Patients." Behavioral Therapy 6 (1975): 14-21.

Osquthorpe N., Roper, J., "The Effect of Teaching on Medication Knowledge." Western Journal of Nursing Research 5 (1983): 205-216.

Rosenburg, Stanley, G., "Patient Education Leads to Better Care for Heart Patients." Public Health Reports 86 (1971): 793-802.

Schroede, Steven, "Lowering Broken Appointment Rates at a Medical Clinic." Medical Care 11 (1973): 75-78.

Sinnet, E., "Credibility of Sources of Information About Drugs." Psychology Report 36 (1975): 299-309.

"Staff Shortage Reduces Eye Exam." HSC Mercury April (1988): 1.

Steiber, Steven, R., Boscarino, J., "A Progress Report on Hospital Marketing." Hospitals 58 (1984): 98-102.

Steiber, Steven, R., Boscarino, Joseph, A., "Hospital Marketing More Sophisticated: Survey." Hospitals 59 (1985): 73, 76-77.

Tuckett, David, Williams, Anthony, "Approaches to the Measurement of Explanation and Information-Giving in Medical Consultations: A Review of Empirical Studies." Social Science Medicine 18 (1984): 571-580.

"Twenty-Four Million Dollar Budget Cut." HSC Mercury April (1988): 1.

Uzark, Kenneth, Klos, David, "Use of Videotape in the Preparation of Children for Cardiac Catheterization." Pediatric Cardiology 3 (1982): 287-291.